In the Claims:

Applicants hereby submit amended claims, including a complete listing of all claims in the application with the status of each claim in parentheses.

1.- 2. (canceled)

3. (previously presented) A method for use in a plasma deposition apparatus to deposit a coating comprising a continuous tetrahedral amorphous carbon on a substrate, the method comprising:

ionizing a source material so as to form a plasma containing ions which comprise carbon; and

energizing the ions to form a stream having a substantially uniform impact energy distribution and substantially uniform weight distribution from the plasma straight toward the substrate so that carbon from the ions is deposited on the substrate, wherein the substantially uniform impact energy distribution and the substantially uniform weight distribution promote formation of more than 15% sp^3 carbon-carbon bonds.

4. (previously presented) A method as in claim 3, wherein the carbon is deposited on the substrate at a rate higher than 10 Å per second.

5. (Original) A method as in claim 3, wherein the source material comprises acetylene.

6. (canceled)

7. (previously presented) A method for formation of an ion beam that provides carbon deposition over a substrate, the ion beam produced by inductively ionizing an acetylene

plasma within a plasma volume and capacitatively coupling the plasma so as to form a stream of ions from within the plasma volume, the method comprising:

moving a magnetic field through the plasma volume to promote even resonant inductive ionization and homogenize the ion beam which deposits carbon over the substrate, wherein the magnetic field rotates with a frequency of less than 10,000 Hz.

8. (previously presented) A method as claimed in claim 7, wherein moving the magnetic field comprises selectively energizing magnetic coils disposed about the plasma volume.

9. (previously presented) A method as claimed in claim 7, wherein the magnetic field rotates through the plasma volume with a frequency which is much less than the frequency of an alternating induction potential within the plasma volume.

10. (previously presented) A method as claimed in claim 7, wherein the magnetic field is transverse and rotates about an axis which is substantially normal to a capacitatively coupled extraction grid within the plasma volume.

11. (previously presented) A method as claimed in claim 7, wherein the magnetic field rotates with a frequency of less than 100 Hz.

12.-15. (canceled).

16. (previously presented) A method as in claim 3, wherein the ion impact energy is targeted to be in a range between 100 eV and 120 eV for each carbon atom.

17. (previously presented) A method as in claim 4, wherein the carbon is deposited on the substrate at a rate in a range from 30 Å per second to 100 Å per second.

18. (previously presented) A method as in claim 7, wherein the carbon is deposited on the substrate at a rate in a range from 20 Å per second to 100 Å per second.

19. (previously presented) A method as in claim 3, wherein the substrate includes a magnetic recording medium.

20. (previously presented) A method as in claim 3, wherein the substrate includes a semiconductor material.

21. (previously presented) A method as in claim 7, wherein the substrate includes a magnetic recording medium.

22. (previously presented) A method as in claim 7, wherein the substrate includes a semiconductor material.

23. (previously presented) The method of claim 3 wherein the substantially uniform impact energy distribution and the substantially uniform weight distribution promote the formation of greater than 35% sp^3 carbon-carbon bonds.

24. (previously presented) The method of claim 3 wherein the substantially uniform impact energy distribution and the substantially uniform weight distribution promote the formation of greater than 70% sp^3 carbon-carbon bonds.

25. (previously presented) The method of claim 3 wherein the ions are accelerated toward the substrate by a bias voltage, and wherein the substantially uniform impact energy distribution comprises a width of approximately 5% of the bias voltage.

26. (currently amended) The method of claim 3 wherein the source material ~~comprises acetylene~~ is selected from the group consisting of: (1) acetylene; (2) acetylene and N_2; and (3) acetylene and NF_3, wherein the substantially uniform weight distribution comprises dominant C_2 species of hydrocarbon ion and non-dominant C_4 species of [[C_4]] hydrocarbon ion, and wherein the ~~non-dominant~~ dominant species of hydrocarbon ion comprises ~~not more than~~ at

least about [[5%]] 95% of the ions in the stream when the pressure is maintained not more than about 5 x 10^{-5} mbar.

27. (previously presented) The method of claim 26 wherein the ions are accelerated toward the substrate by a bias voltage, and wherein the substantially uniform impact energy distribution comprises a width of approximately 5% of the bias voltage.

28. (previously presented) The method of claim 3 wherein the sp^3 bonds are formed at least in part by subplantation.

29. (previously presented) The method of claim 3 wherein the carbon deposited on the substrate provides a Raman G peak within a range from about 1490 to about 1510 cm^{-1}.

30. (currently amended) The method of claim 3 wherein the carbon deposited on the substrate provides a plasmon peak ~~greater than~~ in a range from about [[25]] 25.5 eV to about 31.4 eV.

31. (previously presented) A method for depositing a coating comprising a continuous tetrahedral amorphous carbon on a magnetic recording media substrate, the method comprising:

ionizing a source material so as to form a plasma containing ions which comprise carbon; and

energizing the ions to form a stream having a substantially uniform impact energy distribution and a substantially uniform weight distribution so that the carbon ions are deposited on the substrate, wherein the substantially uniform impact energy distribution and the substantially uniform weight distribution are controlled to promote formation of more than 15% sp^3 carbon-carbon bonds and wherein the stream travels straight from the source to the substrate.

32. (previously presented) The method of claim 31 wherein the sp^3 bonds are formed at least in part by subplantation.

33. (previously presented) The method of claim 31 wherein the substantially uniform impact energy distribution and the substantially uniform weight distribution promote formation of more than 35% sp^3 carbon-carbon bonds.

34. (canceled)

35. (previously presented) The method of claim 31 wherein the ions are accelerated toward the substrate by a bias voltage, and wherein the substantially uniform impact energy distribution comprises a width of approximately 5% of the bias voltage.

36. (Canceled)

37. (currently amended) The method of claim 29 wherein the source material ~~comprises acetylene~~ is selected from the group consisting of: (1) acetylene; (2) acetylene and N_2; and (3) acetylene and NF_3, wherein the substantially uniform weight distribution comprises dominant C_2 species of hydrocarbon ion and non-dominant C_4 species of [[C_4]] hydrocarbon ion, and wherein the ~~non-dominant~~ dominant species of hydrocarbon ion comprises ~~not more than~~ at least about [[5%]] 95% of the ions in the stream when the pressure is maintained not more than about 5 x 10^{-5} mbar.

38. (previously presented) The method of claim 37 wherein the ions are accelerated toward the substrate by a bias voltage, and wherein the substantially uniform impact energy distribution comprises a width of approximately 5% of the bias voltage.

39. (previously presented) The method of claim 31 wherein the carbon deposited on the substrate provides a Raman G peak within a range from about 1490 to about 1510 cm^{-1}.

40. (currently amended) The method of claim 31 wherein the carbon deposited on the substrate provides a plasmon peak ~~greater than~~ in a range from about [[25]] 25.5 eV to about 31.4 eV.